

Appln No. 09/747,677
Amdt date November 28, 2006
Reply to Office action of August 28, 2006

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1-89. (Canceled)

90. (Currently Amended) A hyperlinked video broadcast system including a plurality of multiplexed program streams, said system comprising:

a mask generator generating a plurality of masks, each mask corresponding to a particular video frame of a video program, each mask including graphics data associated with one or more
~~for overlaying a graphics image on a video frame, the graphics image being associated with a~~
video objects in the particular video frame, each mask including an identifier to an object mapping table including an entry associated with each of the one or more video objects in the particular video frame, each entry in the object mapping table referencing one or more information data structures including information associated with the corresponding video object;

an annotation source providing a plurality of object data packets including the object mapping table and the one or more information data structures for the one or more associated
~~with the video objects, a particular one of the information data structures the object data~~
including an indicia indicative that [[the]] a particular one of the one or more video objects is linked to one of the plurality of multiplexed program streams, and an identifier for a particular one of the plurality of multiplexed program streams; and

an encoder encoding the plurality of masks and the plurality of object data packets into a television broadcast signal; and

a transmitter transmitting the television broadcast signal and the plurality of multiplexed program streams to a receiver, wherein the receiver is programmed to retrieve and overlay the graphics image corresponding to the particular video object on the corresponding video frame,

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receive viewer actuation of the overlaid graphics image, and in response to the viewer actuation, review the indicia in the ~~object data~~ particular information data structure corresponding to the particular video object for determining whether the ~~associated~~ particular video object is linked to one of the plurality of multiplexed program streams, and in response to a determination that the particular video object is linked to one of the plurality of multiplexed program streams, retrieve from the ~~object data~~ particular information data structure the identifier of the particular one of the plurality of multiplexed program streams, and switch from presenting a current multiplexed program stream to presenting the particular one of the plurality of multiplexed program streams.

91. (Previously Presented) The broadcast system of claim 90, wherein the presented program stream is a video stream.

92. (Previously Presented) The broadcast system of claim 90, wherein the presented program stream is an audio stream.

93. (Currently Amended) The broadcast system of claim 90, wherein the graphics image is overlaid on the particular video object.

94. (Currently Amended) The broadcast system of claim 90, wherein the receiver is further programmed to determine ~~capable of determining~~ whether the particular video object is visible in the corresponding video frame and, responsive to a determination that the particular video object is visible in the corresponding video frame, ~~overlaying~~ overlay the graphics image on the corresponding video frame.

95. (Previously Presented) The broadcast system of claim 90, wherein the television broadcast signal is a digital signal.

96. (Previously Presented) The broadcast system of claim 90, wherein the television broadcast signal is an analog signal.

97. (Previously Presented) The broadcast system of claim 90, wherein the program streams are transmitted in an MPEG transport stream.

98. (Currently Amended) A hyperlinked video reception system including a plurality of received multiplexed program streams, said system comprising:

a tuner receiving a television broadcast signal including a plurality of masks ~~[[data]]~~ and a plurality of object data packets, ~~[[the]]~~ each mask ~~[[data]]~~ corresponding to a particular video frame of a video program and including graphics data associated with one or more ~~for overlaying a graphics image on a video frame, the graphics image being associated with a video objects in the particular video frame, each mask including an identifier to an object mapping table included in at least a particular one of the plurality of object data packets, the object mapping table including an entry associated with each of the one or more video objects in the particular video frame, each entry in the object mapping table referencing one or more information data structures included in one or more of the plurality of object data packets, the information data structures including information associated with the corresponding video object, a particular one of the information data structures ~~the object data~~ including an indicia indicative that ~~[[the]]~~ a particular one of the one or more video objects is linked to one of the plurality of multiplexed program streams, and an identifier for a particular one of the plurality of multiplexed program streams;~~

a decoder coupled to the tuner, the decoder decoding the plurality of masks ~~[[data]]~~ and the plurality of object data packets; and

a processor coupled to the decoder, the processor retrieving and overlaying the graphics image corresponding to the particular video object on the corresponding video frame, receiving viewer actuation of the overlaid graphics image, and in response to the viewer actuation, reviewing the indicia in the ~~object data~~ particular information data structure corresponding to the

particular video object for determining whether the ~~associated~~ particular video object is linked to one of the plurality of multiplexed program streams, and in response to a determination that the video object is linked to one of the plurality of multiplexed program streams, retrieving from the ~~object data~~ particular information data structure the identifier of the particular one of the plurality of multiplexed program streams, and switching from presenting a current multiplexed program stream to presenting the particular one of the plurality of multiplexed program streams.

99. (Previously Presented) The reception system of claim 98, wherein the presented program stream is a video stream.

100. (Previously Presented) The reception system of claim 98, wherein the presented program stream is an audio stream.

101. (Currently Amended) The reception system of claim 98, wherein the graphics image is overlaid on the particular video object.

102. (Currently Amended) The reception system of claim 98, wherein the processor further determines whether the particular video object is visible in the corresponding video frame and, responsive to a determination that the particular video object is visible in the corresponding video frame, ~~overlaying~~ overlays the graphics image on the corresponding video frame.

103. (Previously Presented) The reception system of claim 98, wherein the television broadcast signal is a digital signal.

104. (Previously Presented) The reception system of claim 98, wherein the television broadcast signal is an analog signal.

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105. (Previously Presented) The reception system of claim 98, wherein the program streams are transmitted in an MPEG transport stream.

106. (Currently Amended) A method for switching between multiplexed program streams in a hyperlinked video broadcast system, the method comprising:

generating a plurality of masks, each mask corresponding to a particular video frame of a video program, each mask including graphics data associated with one or more for overlaying a graphics image on a video frame, the graphics image being associated with a video objects in the particular video frame, each mask including an identifier to an object mapping table including an entry associated with each of the one or more video objects in the particular video frame, each entry in the object mapping table referencing one or more information data structures including information associated with the corresponding video object;

providing a plurality of object data packets including the object mapping table and the one or more information data structures for the one or more associated with the video objects, a particular one of the information data structures the object data including an indicia indicative that [[the]] a particular one of the one or more video objects is linked to one of the plurality of multiplexed program streams, and an identifier for a particular one of the plurality of multiplexed program streams;

encoding the plurality of masks and the plurality of object data packets into a television broadcast signal; and

transmitting the television broadcast signal and the plurality of multiplexed program streams to a receiver, wherein the receiver is programmed to retrieve and overlay the graphics image corresponding to the particular video object on the corresponding video frame, receive viewer actuation of the overlaid graphics image, and in response to the viewer actuation, review the indicia in the object data particular information data structure corresponding to the particular video object for determining whether the associated particular video object is linked to one of the plurality of multiplexed program streams, and in response to a determination that the particular video object is linked to one of the plurality of multiplexed program streams, retrieve from the

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~~object data~~ particular information data structure the identifier of the particular one of the plurality of multiplexed program streams, and switch from presenting a current multiplexed program stream to presenting the particular one of the plurality of multiplexed program streams.

107. (Previously Presented) The method of claim 106, wherein the presented program stream is a video stream.

108. (Previously Presented) The method of claim 106, wherein the presented program stream is an audio stream.

109. (Currently Amended) The method of claim 106, wherein the graphics image is overlaid on the particular video object.

110. (Currently Amended) The method of claim 106, wherein the receiver is further ~~capable of determining~~ programmed to determine whether the particular video object is visible in the corresponding video frame and, responsive to a determination that the video object is visible in the corresponding video frame, overlaying the graphics image on the corresponding video frame.

111. (Previously Presented) The method of claim 106, wherein the television broadcast signal is a digital signal.

112. (Previously Presented) The method of claim 106, wherein the television broadcast signal is an analog signal.

113. (Previously Presented) The method of claim 106, wherein the program streams are transmitted in an MPEG transport stream.

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114. (Currently Amended) A method for switching between multiplexed program streams in a hyperlinked video reception system including a tuner, decoder, and processor, the method comprising:

receiving under control of the tuner a television broadcast signal including a plurality of masks ~~[[data]]~~ and a plurality of object data packets, ~~[[the]]~~ each mask ~~[[data]]~~ corresponding to a particular video frame of a video program and including graphics data associated with one or more for overlaying a graphics image on a video frame, the graphics image being associated with a video objects in the particular video frame, each mask including an identifier to an object mapping table included in at least a particular one of the plurality of object data packets, the object mapping table including an entry associated with each of the one or more video objects in the particular video frame, each entry in the object mapping table referencing one or more information data structures included in one or more of the plurality of object data packets, the information data structures including information associated with the corresponding video object, a particular one of the information data structures ~~the object data~~ including an indicia indicative that ~~[[the]]~~ a particular one of the one or more video objects is linked to one of the plurality of multiplexed program streams, and an identifier for a particular one of the plurality of multiplexed program streams;

decoding under control of the decoder the plurality of masks ~~[[data]]~~ and the plurality of object data packets;

overlaying under control of the processor the graphics image corresponding to the particular video object on the corresponding video frame;

receiving under control of the processor viewer actuation of the overlaid graphics image;

responsive to the viewer actuation of the overlaid graphics image, reviewing under control of the processor the indicia in the ~~object data~~ particular information data structure corresponding to the particular video object for determining whether the ~~associated~~ particular video object is linked to one of the plurality of multiplexed program streams;

responsive to a determination that the video object is linked to one of the plurality of multiplexed program streams, retrieving under control of the processor from the ~~object data~~

particular information data structure, the identifier of the particular one of the plurality of multiplexed program streams; and

switching under control of the processor from presenting a current multiplexed program stream to presenting the particular one of the plurality of multiplexed program streams.

115. (Previously Presented) The method of claim 114, wherein the presented program stream is a video stream.

116. (Previously Presented) The method of claim 114, wherein the presented program stream is an audio stream.

117. (Previously Presented) The method of claim 114, wherein the graphics image is overlaid on the video object.

118. (Currently Amended) ~~The method of claim 114,~~ A method for switching between multiplexed program streams in a hyperlinked video reception system including a tuner, decoder, and processor, the method comprising:

receiving under control of the tuner a television broadcast signal including mask data and object data, the mask data including graphics data for overlaying a graphics image on a video frame, the graphics image being associated with a video object, the object data including an indicia indicative that the video object is linked to one of the plurality of multiplexed program streams, and an identifier for a particular one of the plurality of multiplexed program streams;

decoding under control of the decoder the mask data and the object data;

overlaying under control of the processor the graphics image on the video frame;

receiving under control of the processor viewer actuation of the overlaid graphics image;

responsive to the viewer actuation of the overlaid graphics image, reviewing under control of the processor the indicia in the object data for determining whether the associated video object is linked to one of the plurality of multiplexed program streams;

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responsive to a determination that the video object is linked to one of the plurality of multiplexed program streams, retrieving under control of the processor from the object data, the identifier of the particular one of the plurality of multiplexed program streams; and

switching under control of the processor from presenting a current multiplexed program stream to presenting the particular one of the plurality of multiplexed program streams, wherein the overlaying of the graphics image on the video frame includes:

determining whether the video object is visible in the video frame; and

responsive to a determination that the video object is visible in the video frame, overlaying the graphics image on the video frame.

119. (Previously Presented) The method of claim 114, wherein the television broadcast signal is a digital signal.

120. (Previously Presented) The method of claim 114, wherein the television broadcast signal is an analog signal.

121. (Previously Presented) The method of claim 114, wherein the program streams are transmitted in an MPEG transport stream.

122. (Previously Presented) The broadcast system of claim 90, wherein the particular one of the plurality of multiplexed program streams displayed upon the user actuation of the overlaid graphics image is the same for each user receiving the plurality of multiplexed program streams and actuating the overlaid graphics image.

123. (Previously Presented) The broadcast system of claim 90, wherein the indicia is a link type indicating a video link, the identifier identifies a program mapping table, and the receiver extracts from the program mapping table identifiers of video and audio streams associated with the particular one of the plurality of multiplexed program streams.

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124. (New) The broadcast system of claim 90, wherein in response to the viewer actuation, the receiver is further programmed to:

retrieve the identifier of the object mapping table from the mask corresponding to the actuated graphics image;

retrieve the object mapping table based on the retrieved identifier;

locate the entry in the object mapping table for the particular video object;

identify the particular information data structure referenced in the located entry; and

retrieve the indicia from the particular information data structure.